SEQUENCE LISTING

<110> CARLOCK, Leon
CYPHER, Maria

<120> Bioactive Peptides and Unique IRES Elements from Myelin Proteolipid Protein PLP/DM20

<130> 2872-0010

<140> (not yet assigned)
<141> 2004-06-16

<150> PCT/US03/39873
<151> 2003-12-16

<150> US 60/433,573
<151> 2002-12-16

<160> 40

<170> PatentIn version 3.2

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<220>
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1               5                   10                  15

gct tcc ctg gtg gcc act gga ttg tgt ttc ttt ggg gtg gca ctg ttc       96
Ala Ser Leu Val Ala Thr Gly Leu Cys Phe Phe Gly Val Ala Leu Phe
            20                  25                  30

tgt ggc tgt gga cat gaa gcc ctc act ggc aca gaa aag cta att gag      144
Cys Gly Cys Gly His Glu Ala Leu Thr Gly Thr Glu Lys Leu Ile Glu
        35                  40                  45

acc tat ttc tcc aaa aac tac caa gac tat gag tat ctc atc aat gtg      192
Thr Tyr Phe Ser Lys Asn Tyr Gln Asp Tyr Glu Tyr Leu Ile Asn Val
    50                  55                  60

atc cat gcc ttc cag tat gtc atc tat gga act gcc tct ttc ttc ttc      240
Ile His Ala Phe Gln Tyr Val Ile Tyr Gly Thr Ala Ser Phe Phe Phe
65                  70                  75                  80

ctt tat ggg gcc ctc ctg ctg gct gag ggc ttc tac acc acc ggc gca      288
Leu Tyr Gly Ala Leu Leu Leu Ala Glu Gly Phe Tyr Thr Thr Gly Ala
                85                  90                  95
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gtc agg cag atc ttt ggc gac tac aag acc acc atc tgc ggc aag ggc      336
Val Arg Gln Ile Phe Gly Asp Tyr Lys Thr Thr Ile Cys Gly Lys Gly
            100                 105                 110

ctg agc gca acg gta aca ggg ggc cag aag ggg agg ggt tcc aga ggc      384
Leu Ser Ala Thr Val Thr Gly Gly Gln Lys Gly Arg Gly Ser Arg Gly
        115                 120                 125

caa cat caa gct cat tct ttg gag cgg gtg tgt cat tgt ttg gga aaa      432
Gln His Gln Ala His Ser Leu Glu Arg Val Cys His Cys Leu Gly Lys
    130                 135                 140

tgg cta gga cat ccc gac aag ttt gtg ggc atc acc tat gcc ctg acc      480
Trp Leu Gly His Pro Asp Lys Phe Val Gly Ile Thr Tyr Ala Leu Thr
145                 150                 155                 160

gtt gtg tgg ctc ctg gtg ttt gcc tgc tct gct gtg ccc gtg tac att      528
Val Val Trp Leu Leu Val Phe Ala Cys Ser Ala Val Pro Val Tyr Ile
                165                 170                 175

tac ttc aac acc tgg acc acc tgc gac tct att gcc ttc ccc agc aag      576
Tyr Phe Asn Thr Trp Thr Thr Cys Asp Ser Ile Ala Phe Pro Ser Lys
            180                 185                 190

acc tct gcc agt ata ggc agt ctc tgt gct gac gcc aga atg tat ggt      624
Thr Ser Ala Ser Ile Gly Ser Leu Cys Ala Asp Ala Arg Met Tyr Gly
        195                 200                 205

gtt ctc cca tgg aat gct ttc cct ggc aag gtt tgt ggc tcc aac ctt      672
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225                 230                 235                 240

att gct gca ttt gtg ggg gct gca gct aca ctg gtt tcc ctg ctc acc      768
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Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys Leu Met Gly
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            20                  25                  30

Cys Gly Cys Gly His Glu Ala Leu Thr Gly Thr Glu Lys Leu Ile Glu
        35                  40                  45

Thr Tyr Phe Ser Lys Asn Tyr Gln Asp Tyr Glu Tyr Leu Ile Asn Val
    50                  55                  60

Ile His Ala Phe Gln Tyr Val Ile Tyr Gly Thr Ala Ser Phe Phe Phe
65                  70                  75                  80

Leu Tyr Gly Ala Leu Leu Leu Ala Glu Gly Phe Tyr Thr Thr Gly Ala
                85                  90                  95

Val Arg Gln Ile Phe Gly Asp Tyr Lys Thr Thr Ile Cys Gly Lys Gly
            100                 105                 110

Leu Ser Ala Thr Val Thr Gly Gly Gln Lys Gly Arg Gly Ser Arg Gly
        115                 120                 125

Gln His Gln Ala His Ser Leu Glu Arg Val Cys His Cys Leu Gly Lys
    130                 135                 140

Trp Leu Gly His Pro Asp Lys Phe Val Gly Ile Thr Tyr Ala Leu Thr
145                 150                 155                 160

Val Val Trp Leu Leu Val Phe Ala Cys Ser Ala Val Pro Val Tyr Ile
                165                 170                 175

Tyr Phe Asn Thr Trp Thr Thr Cys Asp Ser Ile Ala Phe Pro Ser Lys
            180                 185                 190

Thr Ser Ala Ser Ile Gly Ser Leu Cys Ala Asp Ala Arg Met Tyr Gly
        195                 200                 205

Val Leu Pro Trp Asn Ala Phe Pro Gly Lys Val Cys Gly Ser Asn Leu
    210                 215                 220

Leu Ser Ile Cys Lys Thr Ala Glu Phe Gln Met Thr Phe His Leu Phe
225                 230                 235                 240

Ile Ala Ala Phe Val Gly Ala Ala Ala Thr Leu Val Ser Leu Leu Thr
                245                 250                 255

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Arg Gly Thr Lys Phe
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gct tcc ctg gtg gcc act gga ttg tgt ttc ttt ggg gtg gca ctg ttc       96
Ala Ser Leu Val Ala Thr Gly Leu Cys Phe Phe Gly Val Ala Leu Phe
            20                  25                  30

tgt ggc tgt gga cat gaa gcc ctc act ggc aca gaa aag cta att gag      144
Cys Gly Cys Gly His Glu Ala Leu Thr Gly Thr Glu Lys Leu Ile Glu
        35                  40                  45

acc tat ttc tcc aaa aac tac caa gac tat gag tat ctc atc aat gtg      192
Thr Tyr Phe Ser Lys Asn Tyr Gln Asp Tyr Glu Tyr Leu Ile Asn Val
    50                  55                  60

atc cat gcc ttc cag tat gtc atc tat gga act gcc tct ttc ttc ttc      240
Ile His Ala Phe Gln Tyr Val Ile Tyr Gly Thr Ala Ser Phe Phe Phe
65                  70                  75                  80

ctt tat ggg gcc ctc ctg ctg gct gag ggc ttc tac acc acc ggc gca      288
Leu Tyr Gly Ala Leu Leu Leu Ala Glu Gly Phe Tyr Thr Thr Gly Ala
                85                  90                  95

gtc agg cag atc ttt ggc gac tac aag acc acc atc tgc ggc aag ggc      336
Val Arg Gln Ile Phe Gly Asp Tyr Lys Thr Thr Ile Cys Gly Lys Gly
            100                 105                 110

ctg agc gca acg ttt gtg ggc atc acc tat gcc ctg acc gtt gtg tgg      384
Leu Ser Ala Thr Phe Val Gly Ile Thr Tyr Ala Leu Thr Val Val Trp
        115                 120                 125

ctc ctg gtg ttt gcc tgc tct gct gtg ccc gtg tac att tac ttc aac      432
Leu Leu Val Phe Ala Cys Ser Ala Val Pro Val Tyr Ile Tyr Phe Asn
    130                 135                 140

acc tgg acc acc tgc gac tct att gcc ttc ccc agc aag acc tct gcc      480
Thr Trp Thr Thr Cys Asp Ser Ile Ala Phe Pro Ser Lys Thr Ser Ala
145                 150                 155                 160

agt ata ggc agt ctc tgt gct gac gcc aga atg tat ggt gtt ctc cca      528
Ser Ile Gly Ser Leu Cys Ala Asp Ala Arg Met Tyr Gly Val Leu Pro
                165                 170                 175

tgg aat gct ttc cct ggc aag gtt tgt ggc tcc aac ctt ctg tcc atc      576
Trp Asn Ala Phe Pro Gly Lys Val Cys Gly Ser Asn Leu Leu Ser Ile
            180                 185                 190
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tgc aaa aca gct gag ttc caa atg acc ttc cac ctg ttt att gct gca      624
Cys Lys Thr Ala Glu Phe Gln Met Thr Phe His Leu Phe Ile Ala Ala
        195                 200                 205

ttt gtg ggg gct gca gct aca ctg gtt tcc ctg ctc acc ttc atg att      672
Phe Val Gly Ala Ala Ala Thr Leu Val Ser Leu Leu Thr Phe Met Ile
    210                 215                 220

gct gcc act tac aac ttt gcc gtc ctt aaa ctc atg ggc cga ggc acc      720
Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys Leu Met Gly Arg Gly Thr
225                 230                 235                 240

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Lys Phe
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Ala Ser Leu Val Ala Thr Gly Leu Cys Phe Phe Gly Val Ala Leu Phe
            20                  25                  30

Cys Gly Cys Gly His Glu Ala Leu Thr Gly Thr Glu Lys Leu Ile Glu
        35                  40                  45

Thr Tyr Phe Ser Lys Asn Tyr Gln Asp Tyr Glu Tyr Leu Ile Asn Val
    50                  55                  60

Ile His Ala Phe Gln Tyr Val Ile Tyr Gly Thr Ala Ser Phe Phe Phe
65                  70                  75                  80

Leu Tyr Gly Ala Leu Leu Leu Ala Glu Gly Phe Tyr Thr Thr Gly Ala
                85                  90                  95

Val Arg Gln Ile Phe Gly Asp Tyr Lys Thr Thr Ile Cys Gly Lys Gly
            100                 105                 110

Leu Ser Ala Thr Phe Val Gly Ile Thr Tyr Ala Leu Thr Val Val Trp
        115                 120                 125

Leu Leu Val Phe Ala Cys Ser Ala Val Pro Val Tyr Ile Tyr Phe Asn
    130                 135                 140

Thr Trp Thr Thr Cys Asp Ser Ile Ala Phe Pro Ser Lys Thr Ser Ala
145                 150                 155                 160

Ser Ile Gly Ser Leu Cys Ala Asp Ala Arg Met Tyr Gly Val Leu Pro
                165                 170                 175
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Trp Asn Ala Phe Pro Gly Lys Val Cys Gly Ser Asn Leu Leu Ser Ile
            180                 185                 190

Cys Lys Thr Ala Glu Phe Gln Met Thr Phe His Leu Phe Ile Ala Ala
        195                 200                 205

Phe Val Gly Ala Ala Ala Thr Leu Val Ser Leu Leu Thr Phe Met Ile
    210                 215                 220

Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys Leu Met Gly Arg Gly Thr
225                 230                 235                 240

Lys Phe


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1               5                   10                  15

tcc aac ctt ctg tcc atc tgc aaa aca gct gag ttc caa atg acc ttc       96
Ser Asn Leu Leu Ser Ile Cys Lys Thr Ala Glu Phe Gln Met Thr Phe
            20                  25                  30

cac ctg ttt att gct gca ttt gtg ggg gct gca gct aca ctg gtt tcc      144
His Leu Phe Ile Ala Ala Phe Val Gly Ala Ala Ala Thr Leu Val Ser
        35                  40                  45

ctg ctc acc ttc atg att gct gcc act tac aac ttt gcc gtc ctt aaa      192
Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys
    50                  55                  60

ctc atg ggc cga ggc acc aag ttc                                     216
Leu Met Gly Arg Gly Thr Lys Phe
65                  70


<210>  6
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<213>  Homo sapiens

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1               5                   10                  15
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            20                  25                  30

His Leu Phe Ile Ala Ala Phe Val Gly Ala Ala Ala Thr Leu Val Ser
        35                  40                  45

Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys
    50                  55                  60

Leu Met Gly Arg Gly Thr Lys Phe
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1               5                   10                  15

ctg gtt tcc ctg ctc acc ttc atg att gct gcc act tac aac ttt gcc       96
Leu Val Ser Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala
            20                  25                  30

gtc ctt aaa ctc atg ggc cga ggc acc aag ttc                          129
Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe
        35                  40
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<213> Homo sapiens

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            20                  25                  30

Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe
        35                  40
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<213> Homo sapiens

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gtt tgt ggc tcc aac ctt ctg tcc atc tgc aaa aca gcc gag ttc caa 97
Val Cys Gly Ser Asn Leu Leu Ser Ile Cys Lys Thr Ala Glu Phe Gln
15 20 25

atg acc ttc cac ctg ttt att gct gcg ttt gtg ggt gct gcg gcc aca 145
Met Thr Phe His Leu Phe Ile Ala Ala Phe Val Gly Ala Ala Ala Thr
30 35 40 45

cta gtt tcc ctg ctc acc ttc atg att gct gcc act tac aac ttc gcc 193
Leu Val Ser Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala
50 55 60

gtc ctt aaa ctc atg ggc cga ggc acc aag ttc tgaccgcgg 235
Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe
65 70

<210> 10
<211> 72
<212> PRT
<213> Homo sapiens

<400> 10

Met Tyr Gly Val Leu Pro Trp Asn Ala Phe Pro Gly Lys Val Cys Gly
1 5 10 15

Ser Asn Leu Leu Ser Ile Cys Lys Thr Ala Glu Phe Gln Met Thr Phe
20 25 30

His Leu Phe Ile Ala Ala Phe Val Gly Ala Ala Ala Thr Leu Val Ser
35 40 45

Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys
50 55 60

Leu Met Gly Arg Gly Thr Lys Phe
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<213> Homo sapiens

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Met Tyr Gly Val Leu Pro Trp Asn Ala Phe Pro Gly Lys
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gtt tgt ggc tcc aac ctt ctg tcc atc tgc aaa aca gcc gag ttc caa 97
Val Cys Gly Ser Asn Leu Leu Ser Ile Cys Lys Thr Ala Glu Phe Gln
15 20 25

atg acc ttc cac ctg ttt att gct gcg ttt gtg ggt gct gcg gcc aca 145
Met Thr Phe His Leu Phe Ile Ala Ala Phe Val Gly Ala Ala Ala Thr
30 35 40 45

cta gtt tcc ctg ctc acc ttc atg att gct gcc act tac aac ttc gcc 193
Leu Val Ser Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala
50 55 60

gtc ctt aaa ctc atg ggc cga ggc acc aag ttc cat cat cac cat cac 241
Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe His His His His His
65 70 75

cat tgaccgcgg 253
His

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<212> PRT
<213> Homo sapiens

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1 5 10 15

Ser Asn Leu Leu Ser Ile Cys Lys Thr Ala Glu Phe Gln Met Thr Phe
20 25 30

His Leu Phe Ile Ala Ala Phe Val Gly Ala Ala Ala Thr Leu Val Ser
35 40 45

Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala Val Leu Lys
50 55 60

Leu Met Gly Arg Gly Thr Lys Phe His His His His His His
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Ala Ala Thr Leu Val Ser Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr
15 20 25

aac ttc gcc gtc ctt aaa ctc atg ggc cga ggc acc aag ttc tgaccgcgg 148
Asn Phe Ala Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe
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<212> PRT
<213> Homo sapiens

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1 5 10 15

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20 25 30

Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe
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1 5 10

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Ala Ala Thr Leu Val Ser Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr
15 20 25

aac ttc gcc gtc ctt aaa ctc atg ggc cga ggc acc aag ttc cat cat 145
Asn Phe Ala Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe His His
30 35 40 45

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cac cat cac cat tgaccgcgg                                              166
His His His His
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<210> 16
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<212> PRT
<213> Homo sapiens

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Leu Val Ser Leu Leu Thr Phe Met Ile Ala Ala Thr Tyr Asn Phe Ala
            20                  25                  30

Val Leu Lys Leu Met Gly Arg Gly Thr Lys Phe His His His His His
        35                  40                  45

His
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           1               5                   10

gtt tgt ggg tgc tgc ggc cac act agt ttc cct gct cac ctt cat gat       97
Val Cys Gly Cys Cys Gly His Thr Ser Phe Pro Ala His Leu His Asp
    15                  20                  25

tgc tgc cac tta caa ctt cgc cgt cct taaactcatg ggccgaggca           144
Cys Cys His Leu Gln Leu Arg Arg Pro
30                  35

ccaagttctg accgcgg                                                 161
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1 5 10 15

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Leu Gln Leu Arg Arg Pro
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<210> 22
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<220>
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<210> 24
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<220>
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<210> 29
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<212> DNA
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<212> DNA
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